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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/748,315	12/29/2003	Tai-Cheng Yu		8002

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EXAMINER	
QI, ZHI QIANG	
ART UNIT	**PAPER NUMBER**
2871	

DATE MAILED: 07/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/748,315	YU ET AL.	
	Examiner	Art Unit	
	Mike Qi	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 May 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-7 and 10-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,283,602 B1 (Kawaguchi et al) in view of US 5,745,519 (Ruda et al).

Regarding claims 1, 10 and 15, Kawaguchi discloses (col.1, lines 14-33; Fig.10) that a lighting device (surface lighting device) for a display device comprising:

- a light guide plate(101) having a light incident surface (101a);
- point light source (102) opposite to the light incident surface (101a);
- lenses (micro-lens) (103) located between the point light source (102) and the light incident surface (101a);
- the light guide plate (101) and point light source (102) are placed at respective working distance from the micro-lens (because the lens 103 and the light guide 101 and light source 102 are different elements that should be different parts of the device, and they should have a certain working distance), such that the divergent rays emitted from the point light source are coupled into the light incident surface via the lens (such as micro-lens having the same function);

(concerning claim 10)

- Kawaguchi further discloses (col.3, line 19- col.4, line 14; Fig.1) that a light device (4) (surface light device) arranged under the liquid crystal panel (2) so as to obtain the light having a uniform luminance level on the overall planar light emitting surface of the planar light guide (see col.2, lines 29-45).

Kawaguchi does not explicitly discloses that the micro-lens (or lens) collimating divergent rays (or light beams) emitted from the point light sources into parallel rays (or are rendered into non-divergent rays).

Ruda discloses (col.2, lines 33 – col.4, line 7; Figs. 2-4) that the micro-lens (or lens) collimating divergent rays (or the light beams) emitted from the point light sources into parallel rays (or are rendered into non-divergent rays) that all the rays are parallel to each other. Ruda indicates (col.1, lines 27 – 33) that such micro-lens produce a high coupling efficiency for the light beams.

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to modify the lighting device of Kawaguchi with the teachings of using micro-lens (or lens) to collimate divergent rays (or light beams) emitted from the point light sources into parallel rays (or are rendered into non-divergent rays) as taught by Ruda, since the skilled in the art would be motivated for achieving a high coupling efficiency for the light beams (col.1, lines 27 – 33).

Regarding claims 2-4, 11-14 and 16-17, Kawaguchi teaches the invention set forth above except for the micro-lens having a superconic cross-section; having a plane surface or a concave surface facing the point light source, and a convex surface opposite the light incident surface; and the light being collimated from the point light

source so as to couple the light beam into the light incident surface substantially parallel (or the coupled non-divergent rays are substantially parallel), and the parallel rays are perpendicular to the light incident surface of the light guide.

Ruda discloses (col.1, lines 23 – 33; col.2, line 33 – col.3, line 54; Figs. 2-4) that using mirolens having superconic cross-section for focusing the light emitted from a point light source, and such focusing would collimate the light beam to emit parallel light beam, and such parallel light beam (non-divergent rays) are perpendicular to the light incident surface; and such superconic lens having a plane surface (see Fig.2) or a concave surface (see Fig.3-4) facing the point light source and a convex surface opposite to the light incident surface (the light beams enter into the optical fiber that is the same principle as the light beams enter into the light guide) as shown in Figs 2-4. Ruda indicates (col.1, lines 23-33) that such microlens with a superconic cross section produces a high coupling efficiency of about 92% to 95%.

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to modify the lighting device of Kawaguchi with the teachings of using micro-lens having superconic cross section as taught by Ruda, since the skilled in the art would be motivated for achieving parallel light beam coupling high efficiency to the light incident surface of the light guide (see col.1, lines 23 – 33).

Regarding claim 5, Kawaguchi discloses (col.4, lines 4-14 and abstract) that the point light source is tungsten lamp (miniature bulb) or LED (light emitting diode) (see abstract) as the point light source that is conventional as the low cost and more durable.

Regarding claims 6-7, Kawaguchi discloses (col.4, lines 4-14; Fig.1) that the light guide (16) having parallelepiped shape as shown in Fig.1, and having a light emitting surface (16a) adjoining to the light incident surface (16b) and a bottom surface opposite to the light output surface (16a). The Fig.10 of Kawaguchi only shows a plane view, conventionally, the sectional view would have the same parallelpiped shape for the light guide as the Fig.1.

3. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawaguchi and Ruda as applied to claims 1-7 and 10-17 above, and further in view of US 6,533,440 B2 (Koyama et al).

Regarding claim 8, Kawaguchi and Ruda teach the invention set forth above except for the bottom surface of the light guide having a dot pattern thereon or having a plurality of v-cut grooves therein.

Koyama discloses (col.1, lines 10-25; Fig.1) that the bottom surface of the light guide plate having a dot-printed plane (2) (dot-pattern) so as to prevent the light leakage, and the v-cut groove pattern would be an obvious variation as the light scattering and diffraction.

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to modify the lighting device of Kawaguchi and Ruda with the teachings of arranging a dot-pattern on the bottom surface of the light guide as taught by Koyama, since the skilled in the art would be motivated for preventing the light leakage (see col.1, lines 10-25).

4. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawaguchi and Ruda as applied to claims 1-7 and 10-17 above, and further in view of JP 2002-93222.

Regarding claim 9, Kawaguchi and Ruda teach the invention set forth above except for the light incident surface of the light guide having an anti-reflective film.

JP 2002-93222 discloses (paragraph 0017 and 0027; Figs.1-2) that the light incident surface (5) of the light guide (4) having an anti-reflection film (20) so as to reduce the light loss and improve the light utilization.

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to modify the lighting device of Kawaguchi and Ruda with the teachings of arranging an anti-reflective film on the light incident surface as taught by JP 2002-93222, since the skilled in the art would be motivated for preventing the light loss and improving the light utilization (see paragraph 0017 and 0027).

Response to Arguments

5. Applicant's arguments filed on May 12, 2006 have been fully considered but they are not persuasive.

1) The references Kawaguchi is relied on to teach (col.1, lines 14-33; Fig.10) a lighting device having point light sources, lens and light guide.

2) The reference Ruda is relied on to teach (col.2, lines 33 – col.4, line 7; Figs. 2-4) that the micro-lens (or the lens) collimating divergent rays (or the light beams) emitted from the point light sources into parallel rays (or are rendered into non-divergent

rays) that all the rays are parallel to each other, and such microlens with a superconic cross section producing a high coupling efficiency.

3) The combination of the prior art of references would have been rendered the claims as claimed obvious as set forth above.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mike Qi whose telephone number is (571) 272-2299. The examiner can normally be reached on M-T 8:00 am-5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571) 272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Mike Qi
July 14, 2006

ANDREW SCHECHTER
PRIMARY EXAMINER